CONTENTS

SECTION A—Vol. XXIV

No. 1—July, 1946

		PAGE
The Crystal Forms of Diamond and their Significance	SIR C. V. RAMAN AND S. RAMASESHAN	1
The Second Order Raman Spectrum of Diamond	R. S. KRISHNAN	25
Thermal Expansion of Diamond	R. S. KRISHNAN	33
Temperature Variations of the Raman Frequencies in Diamond	R. S. KRISHNAN	45
On the Crystal Symmetry of Diamond and Its X-Ray Reflections	G. N. RAMACHANDRAN	58
On the Nature and Origin of the Laminations Observed in Diamond	G. N. RAMACHANDRAN	65
The Luminescence of Diamond Excited by X-Radiation	G. N. RAMACHANDRAN	81
X-Ray Topographs of Diamond—Part II	G. N. RAMACHANDRAN	95
The Faraday Effect in Diamond	S. RAMASESHAN	104
The Cleavage Properties of Diamond	S. RAMASESHAN	114
A Theory of the Crystal Forms of Diamond	S. RAMASESHAN	122
Variations in the Absorption of Infra-Red Radiation by Diamond	K. G. RAMANATHAN	130
The Absorption of Ultra-Violet Radiation by Diamond	K. G. RAMANATHAN	137
The Absorption Spectrum of Diamond in the Visible Region	K. G. RAMANATHAN	145
The Infra-Red Absorption Spectrum of Diamond	K. G. RAMANATHAN	150
Local Variations in the Photoconductivity of Diamond	K. ACHYUTHAN	162
Geometric Patterns of Fluorescence in Diamond	G. R. RENDALL	168
Luminescence as "Forbidden" Electronic Transitions in Diamond	G. N. RAMACHANDRAN AND V. CHANDRASEKHARAN	176

PAGE

Phosphorescence Patterns in Diamond . . V. CHANDRASEKHARAN 182

The Thermoluminescence of Diamond . . . V. CHANDRASEKHARAN 187

The Phosphorescence of Diamond . . . . V. CHANDRASEKHARAN 193

No. 2—August, 1946

Geology and Petrography of the Bezwada and Kondapalle Hill Ranges. Part I. Bezwada Gneiss and Associated Rocks . . . . . M. SRIRAMA RAO 199

X-Ray Studies of Peaty Lignites and Anthracitic Coals . . . . . C. MAHADEVAN 216

On Multiple Fourier Series . . . . . K. CHANDRASEKHARAN 229

5:6:7:8-Hydroxyflavonols. Part II. A Total Synthesis . . . V. V. SREERAMA MURTI, L. RAMACHANDRA ROW AND T. R. SESHADRI 233

5:6:7:8-Hydroxyflavonols. Part III. A Simplified Synthesis . . . . . V. D. NAGESWARA SASTRI AND T. R. SESHADRI 238

Synthesis of 5:7:8-Hydroxyflavones and Their Derivatives . . . . . V. D. NAGESWARA SASTRI AND T. R. SESHADRI 243

Kinetics of the Hydrolysis of Anilides . . . . . D. D. KARVE AND B. W. KELKAR 254

No. 3—September, 1946

Equilibrium Surface Tension of Aqueous Solutions of Nekal Bx and the Effect of Salts . . . . . T. KRISHNAPPA, K. S. GURURAJA DOSS AND BASRUR SANJIVA RAO 261

Aging of Surfaces of Solutions. Part VI. Surface Aging of Casein Solutions . . . G. N. SUBBA RAO, K. S. GURURAJA DOSS AND . . . . . BASRUR SANJIVA RAO 277

Studies in Inorgano-Organic Gels in Pinene. Part V. Gel-Strength Measurements of Gels of Sodium Stearate in Pinene . . . . . MATA PRASAD, S. S. DHARMATTI AND G. S. HATTIANGDI 287

Studies in Inorgano-Organic Gels in Pinene. Part VI. Viscosity Changes with Time and Shear during the Gelation of Some Soap Systems in Pinene . . . G. S. HATTIANGDI AND S. P. ADARKAR 295

No. 4—October, 1946

PAGE

The Electrolytic Preparation of Hydrogen Peroxide. Part I. The Intermediate Production of Sodium Persulphate. . . . . D. N. SOLANKI AND I. S. KAMATH 305

Studies in Charnockites from St. Thomas Mount, Madras—Part I . . . . . C. RAJAGOPALAN 315

Studies in the Naphthalene Series: Part XI. The Condensation of 2-Acetyl-1-naphthol and Methyl-1-hydroxy-2-naphthoate with Stearyl, Palmityl and Lauryl Chlorides . . . . . R. D. DESAI AND W. S. WARAVDEKAR 332

Studies in the Naphthalene Series: Part XII. The Preparation and Properties of 4-Stearyl-, 4-Palmityl- and 4-Lauryl-1-Naphthols . . . . . R. D. DESAI AND W. S. WARAVDEKAR 338

Chemical Examination of Plant Insecticides: Part I. Chemical Components of *Derris feruginea* . . . . . N. V. SUBBA RAO AND T. R. SESHADRI 344

5; 6: 7: 8-Hydroxy-Flavonols. Part IV. A Synthesis of Calycopterin . . . . . T. R. SESHADRI AND V. VENKATESWARLU 349

Colouring Matter of the Flowers of *Hibiscus vitifolius* . . . . . K. VISWESWARA RAO AND T. R. SESHADRI 352

The Bitter Principle of *Phyllanthus niruri* . . . . . G. V. KRISHNAMURTI AND T. R. SESHADRI 357

Chemical Examination of Plant Insecticides: Part II. Chemical Components of *Derris scandens*. . . . . N. V. SUBBA RAO AND T. R. SESHADRI 365

Constitution of Gossypin—Part I . . . . . K. VISWESWARA RAO AND T. R. SESHADRI 375

Studies in Naphthalene Series. Part XIII. The Preparation and Properties of 6-Acy-2-naphthols containing Short and Long Chain Alkyl Groups . . R. D. DESAI AND W. S. WARAVDEKAR 382

Studies in Naphthalene Series: Part XIV. The Preparation and Properties of 2: 4-Distearyl-, 2:4-Dipalmityl- and 2: 4-Dilauryl-1-Naphthols . . . . . R. D. DESAI AND W. S. WARAVDEKAR 389

No. 5—November, 1946

		PAGE
On Fluctuations of Pressure and Temperature in the Atmosphere	R. ANANTHAKRISHNAN	393
Determination of the Magneto Optic Anomaly of Some Glasses	S. RAMASESHAN	426
Umbilical Projection	SAHIB RAM MANDAN	433
A Congruence Property of $\tau(n)$	HANSRAJ GUPTA	441
Some Congruence Properties of the ϕ-Function	P. KESAVA MENON	443
Determination of Magnesium and Residual Manganese in Rocks and Minerals with 8-Hydroxy-Quinoline	C. KARUNAKARAN AND K. NEELAKANTAM	448
Conditions of Plane Orbits in Classical and Relativistic Fields	V. V. NARLIKAR AND K. R. KARMARKAR	451
Constitution of Populnin	P. RAMACHANDRA RAO AND T. R. SESHADRI	456
Chemical Examination of Plant Insecticides. Part III. Chemical Components of *Derris Robusta*	N. V. SUBBA RAO AND T. R. SESHADRI	465

No. 6—December, 1946

A New Band System (Cordes Bands) of Iodine	P. VENKATESWARLU	473
Emission Bands of Halogens. Part I. Iodine Bands arising in 0_u^+ State at 51683 cm.$^{-1}$	P. VENKATESWARLU	480
Condensation of Aldehydes with Amides. Part XII. Condensation of Benzaldehyde and *o*-Chlorobenzaldehyde	GUR SARAN BHATNAGAR AND KANTI LAL C. PANDYA	487
Chemical Examination of the Fixed Oil Derived from the Wood of *Pterocarpus Marsupium* Roxb.—Part I	PRITHWI NATH BHARGAVA	496
Chemical Examination of the Fixed Oil Derived from the Wood of *Pterocarpus Marsupium* Roxb. Part II. Isolation of Pterocarpol A and Petrocarpol B	PRITHWI NATH BHARGAVA	501

PAGE

Chemical Examination of the Unsaponifiable Matter of the Fat from the Fleshy Arils of *Celastrus paniculata* . . . . . PRITHWI NATH BHARGAVA 506

Overtone and Combination Lines in the Raman Spectrum of Chloroform . . . . . M. VISWESWARA RAO 510

Production of *Joshi-Effect* under *Uni-* and *Bi-*Electrode Excitation . . . . . B. B. PRASAD 514

A New Identical Equation for Multiplicative Functions of Two Arguments and its Applications to Ramanujan's Sum $C_M^{(N)}$ . . . . . C. S. VENKATARAMAN 518